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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,628	08/31/2001	Gary Q. Jin	11775-US	9081
23553	7590	03/22/2005	EXAMINER	
			EMDADI, KAMRAN	
		ART UNIT		PAPER NUMBER
				2667
DATE MAILED: 03/22/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,628	JIN, GARY Q.	
	Examiner	Art Unit	
	Kamran Emdadi	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 31 August 2001.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-16 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8-31-01, 9-3-03</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

Rejections under 35 U.S.C. 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by De Bot (U.S. Patent No. 5,528,581).

De Bot teaches a diversity transmission system for sub-band diversity reception that includes FFT units 62, 64...66, which calculate an FFT by splitting an FFT into 1024 sub-bands. The corresponding sub-bands from different FFT units are combined by the sub-band combining means 62, 64...66 into a combined sub-band signal (see column 4, lines 31-39 of De Bot).

Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Butash (U.S. Patent No. 5,867,479).

Butash teaches a digital multi-channel DEMUX/MUX architecture that includes a system for implementing a FFT. A FDM channel band of data is broken down into sub-bands K, and an FFT is performed on each of the sub-bands (see column 2, lines 10-17 of Butash).

Rejection under 35 U.S.C. 102(e)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. (U.S. Patent No. 6,442,195).

Regarding claims 1 and 9, Liu teaches a high-speed communications system that includes performing a FFT on individual sub-bands of separate analog front end (AFE) circuits (see column 10, lines 6-14 of Liu).

Regarding claims 2 and 10, Liu teaches implementing passband filters to isolate the sub-band signals (see column 9, lines 22-26 of Liu).

Regarding claims 3, 13-14 and 16, Liu teaches a modulator to process the sub-bands separately (see Abstract of Liu) and a sampling means for up-sampling and down-sampling the signal to a desired sampling rate (see column 17, lines 8-11 of Liu).

Regarding claims 4 and 7, Liu teaches using DMT (see Abstract of Liu).

Regarding claims 5 and 8, Liu teaches using VDSL (see column 16, lines 53-55 of Liu).

Regarding claim 6, Liu teaches using IFFT (see column 10, lines 55-60 of Liu).

Regarding claim 15, Liu teaches using a variable sized FFT (see column 9, lines 25-26 of Liu).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Yeap et al. (U.S. Patent No. 6,456,657).

Liu teaches all of the above disclosed features, however, nowhere does the disclosure of Liu teach performing an FFT on a single side band of a sub-band or using a single side band filter. Yeap discloses a FDM transmission of sub-band signals that includes a single side band modulation performed on a sub-band signal. The single side band processing is performed to achieve bandwidth reduction.

The sub-band processing performed in Liu and in Yeap increases signal transmission performance, as evident in the summary of the invention of Liu (see column 2, lines 55-60 of Liu) and in the background information of Yeap (see column 3, lines 15-18 of Yeap). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of these two inventions to arrive at the features recited in claims 11-12.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kamran Emdadi whose telephone number is 571-272-6047. The examiner can normally be reached M-F between the hours of 7am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kamran Emdadi

March 15, 2005


CHI PHAM
SUPERVISORY PATENT EXAMINEE
TECHNOLOGY CENTER 2000 3/15/05